

# HybridSpectral Radiometer Systems to Support Ocean Color Cal/Val, Phase I

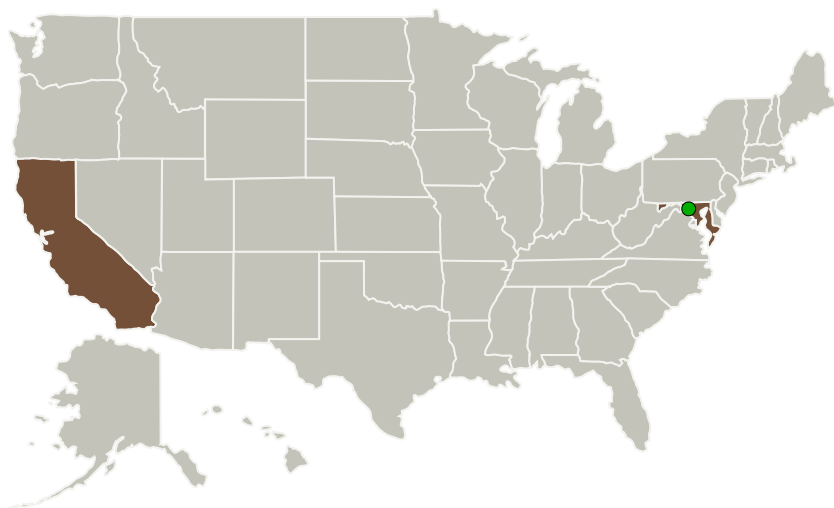
Completed Technology Project (2012 - 2012)



## Project Introduction

NASA has an ongoing commitment to collect in situ data with a documented uncertainty in keeping with established performance metrics for vicarious calibration of ocean color satellite sensors and to validate the algorithms for which the remotely-sensed observations are used as input parameters. This proposal seeks funding to develop an in-water "Hybridspectral" capability that combines two differing practices for data collection (multiwaveband and hyperspectral) to satisfy the necessary diversity, accuracy, and precision requirements of future ocean color missions. The result is an evolutionary upgrade of existing state-of-the-art commercial instruments to include spectral sampling capability exceeding current and planned satellite requirements and that operate in optically complex near-shore regions. The benefits of this new sampling capability are an improved ability to accurately separate the biotic and abiotic components of seawater, an improved ocean color mission calibration and validation capability into Case 2 waters, reduced deployment effort, and reduced deployment risks. This SBIR effort proposes to address a wide variety of these requirements with the development of a low-cost system called the Compact Hybridspectral Radiometer (C-HyR) with special focus on two important priorities from the call: 1) Instruments for oceanic, coastal, and fresh water measurements of apparent optical properties; and 2) Hyperspectral (340 – 900 nm) radiometers for use in near-surface profiling.

## Primary U.S. Work Locations and Key Partners



HybridSpectral Radiometer  
Systems to Support Ocean Color  
Cal/Val, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Biospherical Instruments, Inc.	Lead Organization	Industry	San Diego, California
● Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
California	Maryland

## Project Transitions

▶ **February 2012:** Project Start

✓ **August 2012:** Closed out

**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140282>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Biospherical Instruments, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

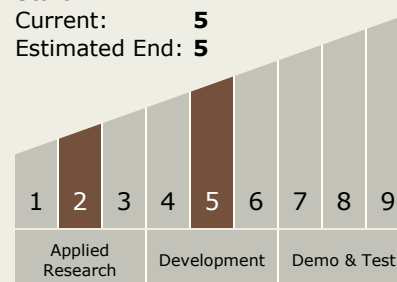
Carlos Torrez

**Principal Investigator:**

Charles Booth

## Technology Maturity (TRL)

Start: 2  
Current: 5  
Estimated End: 5



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## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System